

REMARKS

Claims 25-45 are pending in the above application. Claims 25-28, 31 and 35 stand rejected under 35 U.S.C. §102 as being anticipated by Escallier U.S. Patent No. 4,548,661. Claims 29, 30, 32 and 34 stand rejected under 35 U.S.C. §103 as being unpatentable over Escallier in view of Hake U.S. Patent No. 5,861,578. According to the Office Action, it would have been obvious to use polyesters for the second film and polyurethane for the adhesive layer of each laminated film as taught by Hake in the structure of Escallier. Claims 33, 36, 37, 40, 41 and 43-45 also stand rejected under 35 U.S.C. §103 as being unpatentable over Escallier in view of Hols U.S. Patent No. 6,071,551. Finally, claims 38, 39 and 42 stand rejected under 35 U.S.C. §103 as being unpatentable over Escallier in view of Hols, further in view of Hake.

By this response, Applicants have cancelled claim 27 and amended claims 25, 29, 30, 31, 33, 34, 35, 36, 37 and 39. Claims 30, 34 and 39 have been amended to overcome the claim objections set forth in paragraph one of the Office Action.

The Escallier reference is directed toward a multi-conductor flat cable incorporating a right angle turn in the conductors and a method of making such a cable. In the cable of Escallier, a first laminate layer is applied to one side of the conductors while leaving portions of the conductors exposed through a window opening in the first laminate layer. The conductors in the region of the window are then bent 90°. The second laminate layer is then applied to the conductors to bond to the first laminate layer and secure the conductors in the desired angular arrangement.

With regard to the rejections under 35 U.S.C. §102, the Applicants respectfully submit that independent claim 25 is novel in view of the Escallier reference because the present claim and the prior art differ. Claim 25 is distinguished from the Escallier reference because claim 25 recites a composite film comprising at least two to N sealable multi-layered laminated films wherein each multi-layered film comprises a first film, a second film and a laminating adhesive or lacquer between the first and second films and the composite films sealingly engaging one side of a functional

element which the Escallier reference does not teach. In other words, each side of the functional element is sealingly engaged by a composite film comprising at least two laminated films. The Escallier reference does not teach this claimed arrangement. Indeed, in the region of the conductor window, the device of Escallier only includes one laminate film on one side of the conductor with only an adhesive layer on the other side (see Figure 10 and Col. 5, line 44 - Col. 6, line 12).

With regard to the rejections under 35 U.S.C. §103, Applicants submit that the combination of Escallier and Hake would not render obvious claims 29, 30, 32 and 34 because the references, either alone or in combination, fail to disclose or suggest all of the claimed features of the present invention. In this regard, the Hake reference concerns a conductor coating that is resistant to corona discharge breakdown. This is accomplished primarily through the use of alumina in one of the insulative layers surrounding the copper conductor. Thus, for at least the same reasons presented with regard to the rejections under §102, claims 29, 30, 32 and 34 are non-obvious because the combination of the references fail to reach or disclose a composite film comprising at least two multi-layered laminate films sealingly engaging each side of the functional layer. In addition, neither reference discloses that the second film of each laminated film comprises a thermally active substance as in claim 29.

With regard to the rejection of claim 33, Applicants submit that claim 33 is novel and non-obvious for at least the same reason as set forth with respect to claims 30, 32 and 34.

With regard to the method claims 36, 37, 40, 41 and 43-45 rejected under 35 U.S.C. §103 in view of Escallier and Hols, Applicants submit that the claims are non-obvious for several reasons. With respect to claim 37, the Escallier reference fails to disclose or suggest the claimed structure. With respect to the remaining claims and, in particular, claim 36, Applicants traverse the suggestion in the Office Action that the laminate film of Escallier would be dried, then subsequently cured as claimed in the present invention. The Escallier reference does not disclose the manufacturing process for the laminate film. Instead, Escallier only discloses the structure of the film and the

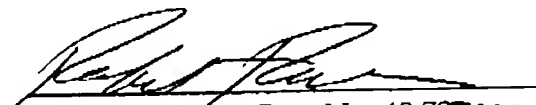
method of manufacturing the cable with a 90° turn. In the Escallier reference, the first film is applied to the conductor, a portion (window) is removed such that turns can be introduced into the conductors, and thereafter, the second film is applied to the cable. Thus, as an initial matter, Escallier does not disclose or suggest Applicants' claimed method of creating a first composite film having a first and second layer with an adhesive layer therebetween and a second composite film having first and second layers with an adhesive layer therebetween and thereafter providing the functional element between the first and second composite films. In other words, the structure of Figure 3 of Escallier proceeds as a first layer (14, 16) applied to the conductor, then a second layer (26, 28) applied to the first layer. The reference is very specific regarding the order of the process so as to enable the cable to be manufactured with the desired angled turns. In contrast, in the present invention, the composite film comprising at least two laminate films is produced, then sealingly applied to the functional element.

Thus, for at least this reason, Applicants submit that claims 36-45 are non-obvious because the cited references, either alone or in combination, fail to disclose or suggest Applicants' claimed method of producing a first and second laminated film each including a first and second film with an adhesive therebetween and thereafter providing a functional element between the first and second laminate films.

Accordingly, in view of the foregoing amendments and remarks, Applicants submit that claims 25, 26 and 28-45 are allowable over the prior art of record. Further examination of the same is now requested and, if appropriate, allowance of the foregoing claims is earnestly solicited. The Examiner is invited to telephone the Applicants' undersigned attorney at (248) 223-9500 if any unresolved matters remain.

Respectfully Submitted,

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VERSION WITH MARKINGS TO SHOWING CHANGES MADE

In The Claims:

Please cancel claim 27.

Please amend claims 25, 29, 30, 31, 33, 34, 35, 36, 37 and 39 to read as follows:

25. (Amended) A halogen-free composite film comprising at least [one] two to N sealable, multi-layered laminated film(s), wherein N is an integer from [2] 3 to 10, [and in which a functional element is interposed between the individual laminated films] each multi-layered laminated film comprising a first film, a second film and a laminating adhesive or lacquer between the first and second films, said composite film sealingly engaging one side of a functional element.

29. (Amended) A composite film according to claim [27] 25 wherein the second film of each laminated film comprises a thermally activated substance.

30. (Amended) A composite film according to claim [27] 25 wherein the first and the second film of [the individual] each laminated film[s] are selected from the group consisting of: liquid crystal polymer, polyphenylene sulfide, polyethylene terephthalate, polyethylene naphthalate, polyketone, polyetherketone, polyetheretherketone, polyetherketone-ketone, polyetheretherketoneketone, polyetherimide, polyether sulfone, polysulfone, cyclo-olefin copolymer, and polyamide films.

31. (Amended) A composite film according to claim [27] 25 wherein the laminating adhesive or lacquer is selected from the group consisting of: acrylates, polyurethanes, polyester polyols, polyester urethanes, epoxides, copolyesters or natural adhesive resins, which can be used as single-component or multi-component systems.

33. (Amended) A composite film according to claim [27] 25 wherein the wet application weight of the laminating adhesive is 2 g/m² to 40 g/m².

34. (Amended) A composite film according to claim 29 wherein the thermally activated substance is selected from the group consisting of: cyclo-olefin copolymers, polyesters, polyurethanes, acrylates and derivates thereof, vinyl acetate copolymers, polyvinyl alcohols, polyvinyl butyrals, polyvinyl acetates, sealable maleic resins, alkyd resins, polyolefins, polyamides and saturated, unsaturated, linear and/or branched copolyesters or multi-component polyurethane primer systems.

35. (Amended) A composite film according to claim [27] 25 wherein the first and second films of the individual laminated films each have a thickness between 10 μ m and 100 μ m.

36. (Amended) A method for manufacturing a halogen-free composite film comprising:

applying a laminating adhesive to a first film of a first laminated film;

thereafter drying the first film in a drying tunnel at temperatures from approximately 80° C to 180° C;

joining a second film at the end of the drying tunnel to the first film to produce said first laminated film;

curing said laminating adhesive of said first laminated film;

thereafter providing a functional element between said first laminated film and a second laminated film produced in the same way as said first laminated film; and

laminating said first and second laminating films together.

37. (Amended) A method according to claim 36 wherein the composite film comprises at least [one] two to N sealable, multi-layered laminated films, wherein N is an integer from [2] 3 to 10.

39. (Amended) A method according to claim 36 wherein the first and the second film of [the individual] each laminated film[s] are selected from the group consisting of: liquid crystal polymer, polyphenylene sulfide, polyethylene terephthalate, polyethylene naphthalate, polyketone, polyetherketone, polyetheretherketone, polyetherketone-ketone, polyetheretherketoneketone, polyetherimide, polyether sulfone, polysulfone, cyclo-olefin copolymer, and polyamide films.